



## K1109

### N-CHANNEL JFET

## N-CHANNEL JFET FOR ELECTRET CONDENSER MICROPHONE

### DESCRIPTION

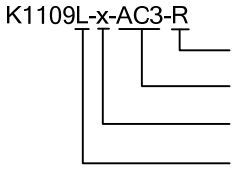
The UTC **K1109** is N-channel JFET for electrets condenser microphone.

### FEATURES

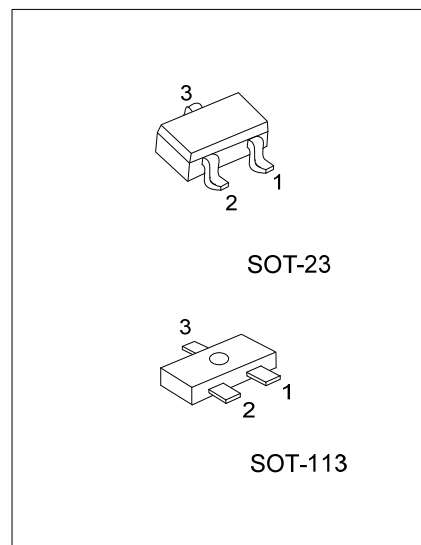
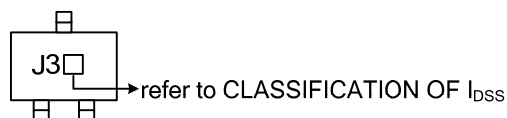
- \* High GM Implies Low Transfer loss
- \* Built-In Gate-Source Diode and Resistor Implies Fast Power on Settling Time

### ORDERING INFORMATION

| Ordering Number |                | Package | Pin Assignment |   |   | Packing   |
|-----------------|----------------|---------|----------------|---|---|-----------|
| Lead Free       | Halogen Free   |         | 1              | 2 | 3 |           |
| K1109L-x-AC3-R  | K1109G-x-AC3-R | SOT-113 | S              | D | G | Tape Reel |
| K1109L-x-AE3-R  | K1109G-x-AE3-R | SOT-23  | S              | D | G | Tape Reel |

|                                                                                     |                                                                                                                                                            |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>(1) R: Tape Reel<br/>(2) AC3: SOT-113, AE3: SOT-23<br/>(3) x: refer to CLASSIFICATION OF <math>I_{DSS}</math><br/>(4) G: Halogen Free, L: Lead Free</p> |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|

### MARKING



■ ABSOLUTE MAXIMUM RATINGS (unless otherwise specified )

| PARAMETER            | SYMBOL    | RATINGS    | UNIT |
|----------------------|-----------|------------|------|
| Drain-Source Voltage | $V_{DSX}$ | 20         | V    |
| Gate-Drain Voltage   | $V_{GDO}$ | -20        | V    |
| Drain Current        | $I_D$     | 10         | mA   |
| Gate Current         | $I_G$     | 10         | mA   |
| Power Dissipation    | $P_D$     | 80         | mW   |
| Junction Temperature | $T_J$     | +125       | °C   |
| Storage Temperature  | $T_{STG}$ | -55 ~ +125 | °C   |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

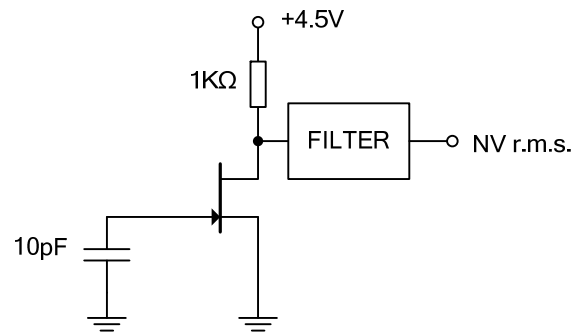
■ ELECTRICAL CHARACTERISTICS ( $T_J=25^{\circ}\text{C}$ , unless otherwise specified)

| PARAMETER                   | SYMBOL        | TEST CONDITIONS                                 | MIN  | TYP  | MAX  | UNIT          |
|-----------------------------|---------------|-------------------------------------------------|------|------|------|---------------|
| Drain Current               | $I_{DSS}$     | $V_{DS}=2.0\text{V}, V_{GS}=0$                  | 40   |      | 600  | $\mu\text{A}$ |
| Gate Off Voltage            | $V_{GS(OFF)}$ | $V_{DS}=5.0\text{V}, I_D=1.0\mu\text{A}$        | -0.1 |      | -1.0 | V             |
| Forward Transfer Admittance | $Y_{FS}$      | $V_{DS}=5.0\text{V}, V_{GS}=0, f=1\text{kHz}$   | 600  | 1600 |      | $\mu\text{S}$ |
| Input Capacitance           | $C_{ISS}$     | $V_{DS}=5.0\text{V}, V_{GS}=0, f=1.0\text{MHz}$ |      | 7.0  | 8.0  | pF            |
| Noise Voltage               | NV            |                                                 |      | 1.8  | 3.0  | V             |

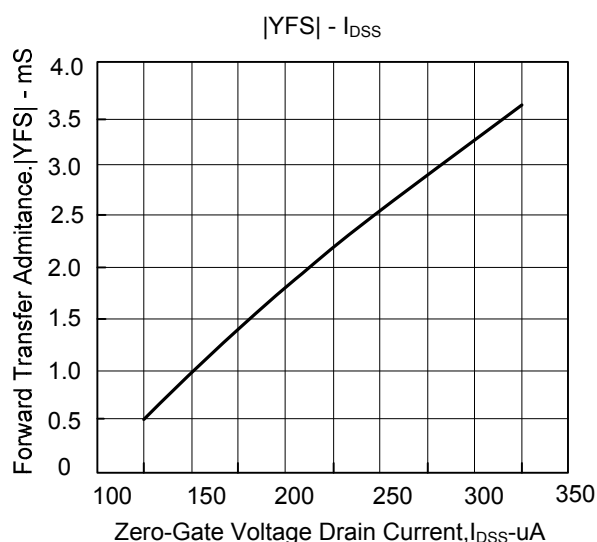
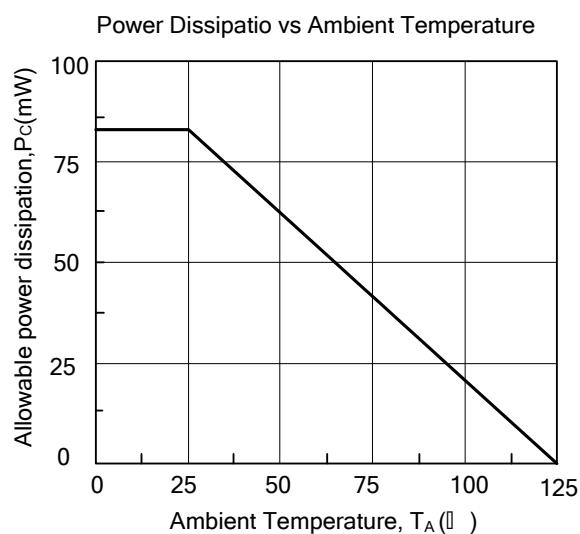
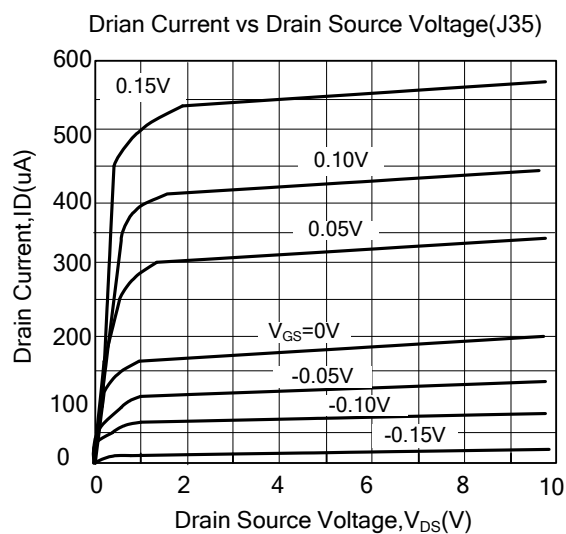
■ CLASSIFICATION OF  $I_{DSS}$

| RANK  | J32   | J33    | J34    | J35     | J36     | J37     |
|-------|-------|--------|--------|---------|---------|---------|
| RANGE | 40-70 | 60-110 | 90-180 | 150-300 | 200-450 | 300-600 |

### ■ TEST CIRCUIT



# ■ TYPICAL CHARACTERISTICS



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